IN THE CLAIMS:

The following claim listing will rep[lace all prior claim listings.

1. (Currently Amended) An alkaline earth metal aluminate fluorescence-type phosphor comprising: bivalent europium as an activator;

barium and/or strontium;

magnesium;

aluminum; and

at least one element (e) selected from the group consisting of indium, tungsten, niobium, bismuth, molybdenum, tantalum, thallium and lead.

2. (Currently Amended) The alkaline earth metal aluminate fluorescence-type phosphor according to Claim 1, which is obtained by a process comprising:

a step (1-1) of firing, in a reducing atmosphere, a mixture of precursor compounds of barium and/or strontium (a), magnesium (b), aluminum (c), europium (d) and at least one element (e) selected from the group consisting of indium, tungsten, niobium, bismuth, molybdenum, tantalum, thallium and lead, respectively, and

a step (1-2) of firing, in an oxidizing atmosphere, the fired product obtained in the step (1-1).

3. (Currently Amended) The alkaline earth metal aluminate fluorescence-type phosphor according to Claim 1, which is obtained by a process comprising:

a step (2-1) of mixing a fired product (A) with a compound (B), said fired product (A) comprising barium and/or strontium (a), magnesium (b), aluminum (c) and europium (d), said compound (B) comprising at least one compound selected from the group consisting of indium compounds, tungsten compounds, niobium compounds, bismuth compounds, molybdenum compounds, tantalum compounds, thallium compounds and lead compounds; and
a step (2-2) of firing, in an oxidizing atmosphere, the mixture obtained in the step (2-1) or a fired product of the mixture obtained in the step (2-1), said step (2-2) being preceded, at least once, by firing in a reducing atmosphere.

4. (Currently Amended) The alkaline earth metal aluminate fluorescence-type phosphor according to any one of Claims 1 to 3, wherein the content of the at least one element (e) selected from the group consisting of indium, tungsten, niobium, bismuth, molybdenum, tantalum, thallium and lead is within a range of 0.0001 to 0.01 mole per mole of the aluminum element.

5. (Currently Amended) The alkaline earth metal aluminate fluorescence-type phosphor according to any one of Claims 1 to 3, wherein the alkaline earth metal aluminate phosphor containing bivalent europium as an activator comprises a compound represented by the following general formula (1):

$(Ba_{1-X}Sr_X)_{1-Y}Eu_YMgAl_{10}O_{17}$ (1),

wherein X satisfies a relationship of $0 \leq X \leq 0.3$ and Y satisfies a relationship of $0 < Y \leq 0.2$.

6. (Currently Amended) The alkaline earth metal aluminate fluorescence-type phosphor according to any one of Claims 1 to 3, which has a powder whiteness of not lower than 85 as expressed in terms of W value.

7. (Currently Amended) A method of producing alkaline earth metal aluminate fluorescence-type phosphors according to Claim 1, comprising:

a step (1-1) of firing, in a reducing atmosphere, a mixture of precursor compounds of barium and/or strontium (a), magnesium (b), aluminum (c), europium (d) and at least one element (e) selected from the group consisting of indium, tungsten, niobium, bismuth, molybdenum, tantalum, thallium and lead, respectively, or a fired product of said mixture.

8. (Currently Amended) The method of producing alkaline earth metal aluminate fluorescence-type phosphors according to Claim 7, further comprising:

a step (1-2) of firing, in an oxidizing atmosphere, the fired product obtained in the step (1-1) of firing in a reducing atmosphere.

9. (Currently Amended) The method of producing alkaline earth metal aluminate fluorescence-type phosphors according to Claim 7 or 8, further comprising:

a step (1-3) of firing in an oxidizing atmosphere in advance of the step (1-1) of firing in a reducing atmosphere.

10. (Currently Amended) A method of producing alkaline earth metal aluminate fluorescence-type phosphors according to Claim 1 or 3, comprising:

a step (2-1) of mixing a fired product (A) with a compound (B), said fired product (A) comprising barium and/or strontium (a), magnesium (b), aluminum (c) and europium (d), said compound (B) comprising at least one compound selected from the group consisting of indium compounds, tungsten compounds, niobium compounds, bismuth compounds, molybdenum compounds, tantalum compounds, thallium compounds and lead compounds; and

a step (2-2) of firing, in an oxidizing atmosphere, the mixture obtained in the step (2-1) or a fired product of the mixture obtained in the step (2-1), said step (2-2) being preceded, at least once, by firing in a reducing atmosphere.

11. (Currently Amended) The method of producing alkaline earth metal aluminate phosphorescence-type phosphors according to Claim 10, wherein said fired product (A) further comprises at least one element (e) selected from the group consisting of indium, tungsten, niobium, bismuth, molybdenum, tantalum, thallium and lead.

12. (Currently Amended) The method of producing alkaline earth metal aluminate fluorescence-type phosphors according to Claim 10, wherein said

firing in a reducing atmosphere comprises firing the mixture obtained in the step (2-1).

13. (Currently Amended) The method of producing alkaline earth metal aluminate fluorescence-type phosphors according to Claim 10, wherein said firing in a reducing atmosphere comprises firing product (A) for producing the fired product (A) comprising barium and/or strontium (a), magnesium (b), aluminum (c) and europium (d).